III. REMARKS

1. Applicant respectfully notes that after numerous Office Actions, an RCE, a Notice of Appeal and Request for Pre-Appeal Brief Request for Review, and a Panel Decision reopening prosecution, the Examiner now issues an Office Action with the very same grounds of rejections raised in the Office Action mailed June 7, 2004. Thus, after a history of prosecution that dates back over 3 years, the Examiner again relies on the teachings of references that were refuted by Applicant as applied to the claimed subject matter.

This was clearly acknowledged by the Examiner, when it was stated, in the Office Action mailed March 14, 2005, that "applicant's argument.... with respect to claim 1 has been fully considered and are persuasive." Thus, there is no reasonable basis why the Examiner would again revert to a basis of rejection that was once refuted, and accepted by the Examiner as such.

Therefore, Applicant respectfully requests that this Office Action be withdrawn and a new, non-final action, or allowance be issued.

2. Claims 1, 6-10, 12, 17-21 and 23-29 are not unpatentable over Wigren et al. (US5572622) ("Wigren") in view of Wood et al. ("Wood") (US6092230) under 35 U.S.C. § 103 (a).

Claim 1 recites that if the speech frame is free of defects on the basis of the channel decoding it is inferred from the value of at least one speech parameter in the channel decoded speech frame whether the speech frame contains speech that is decodable by means of a speech decoder. This is not disclosed or suggested by the combination of Wigren and Wood.

Wigren discloses rejected frame concealment in a radio communication system. When a bad frame is detected it is common to use the information from the previous accepted

frame. Often this technique is combined with muting. The flow diagram of Figure 2 in Wigren (Col. 5, line 45 through Col. 6, line 39) illustrates how the frame concealment works for speech. In step 102 it is decided whether a new frame is acceptable or not. This decision can be made either by first deciding means 20, which rejects frames that do not contain audio signals, or by second deciding means 28, which rejects audio frames containing transmission errors. First deciding means 20 determines whether a received frame contains bits from a traffic channel or the fast associated control channel FACCH. (Col. 4, lines 20-34).

If it is decided that the received frame is acceptable the algorithm proceeds to step 128, in which the received parameters are used without error concealment.

If step 102 decides that the received frame has to be rejected, the algorithm proceeds to step 104, in which it is decided whether the previous (accepted) frame contained speech or background sounds. This may be done with a voice activity detector (VAD, reference numeral 34). It is to be noted that a VAD is able to make a speech/background sound decision only. It cannot make a decision about the decodability of a speech frame with a speech decoder.

If the previous frame in step 104 was determined to be a speech frame the algorithm proceeds into loop S. Then, received parameters may be interpolated with the parameters received in the previous frame. If the current frame is really bad or has been stolen for another purpose, the interpolation gives more weight to the previous frame than the current frame.

Comparing the teaching of Wigren with Applicant's claimed subject matter, the following observations are made:

A) As explained in the present application (paragraphs 0005-0008), the bad frame indication (BFI) technique does not always work, as the bits of a speech frame may invert on the radio path, so that the speech frame no longer contains acceptable data that could be decoded by a speech decoder, although on the basis of the channel code

decoding, the speech frame is free of defects. Another problem may be that the speech frame is actually free of defects on the basis of the channel code, but for some reason, for example due to incorrect input parameters, the decryption puts the contents of the speech frame that is faultless as such in complete disorder. Failure of BFI may lead to an audio shock to the user due to a very strong defective signal outputted from the speech decoder.

B) In Applicant's invention the BFI failure is corrected as recited in claim 1 (cf. Figure 5 and claim 1 of the present application, for example):

1) Speech frame is channel-decoded; and

2) **If the speech frame is free of defects on the basis of the channel-decoding, it is inferred from the value of at least one speech parameter in the channel decoded speech frame whether the speech frame contains speech that is decodable by means of a speech decoder**;

3) And if, according to the inference, the speech frame does contain speech that is decodable by means of a speech decoder, the speech frame is decoded by means of a speech decoder;

4) And if, according to the inference, the speech frame does not contain speech that would be decodable by means of a speech decoder, the speech frame is not decoded.

C) Wigren does not describe the functionality of the Applicant's claimed subject matter (cf. point B above), as Wigren does not make two successive checks as does Applicant (checking of channel decoding in step 506, and checking whether speech frame contains decodable speech in steps 508 and 510 shown in FIG. 5). Rather, Wigren only makes two parallel checks (step 102: first deciding means 20 rejecting frames that do not contain audio signals or second deciding means 28 rejecting audio frames containing transmission errors. In Wigren, first deciding means 20 determines whether a received frame contains bits from a traffic channel or the fast associated control

channel FACCH). Wigren does not recognize the problem of the present application, i.e. that the speech frame that does not seem to contain transmission errors on the basis of the channel-decoding may contain speech that is not decodable. It should be noted that loop S is only entered when the frame is not OK, i.e. it contains transmission errors or it does not contain speech but FACCH information. Wigren does not disclose or suggest that after the channel-coding is decoded and passed, there needs to be another check where some parameter of the channel-decoded speech frame is checked in order to find out whether the speech frame really contains speech decodable by a speech decoder. As claimed by Applicant, the term "speech parameter" (used in independent claims of the present application) refers to parameters produced by a speech codec (in TETRA system such a speech codec can be the ACELP codec, (see e.g. paragraph 80). Therefore, "speech parameter" cannot be interpreted as information on whether a frame contains FACCH information.

Thus, in Wigren the speech frame is always considered to be decodable by a speech decoder, if the channel decoding indicates that the frame is acceptable. Wigren does not teach that if the speech frame is free of defects on the basis of the channel-decoding, it is inferred from the value of at least one speech parameter in the channel decoded speech frame whether the speech frame contains speech that is decodable by means of a speech decoder.

Wood does not overcome the deficiencies of Wigren. Wood discloses bad frame detection in a communication system. Wood describes a way to improve the detection of bad frames, i.e. BFI (Bad Frame Indicator). BFI is detected with CRC (Cyclic Redundancy Check) calculation. In addition to this, channel decoding and re-encoding is also performed. By comparing decoded and re-encoded bits, an SER (Symbol Error Rate) is obtained. The SER is then compared with a threshold (there can exist multiple bit correction thresholds, i.e. the threshold is dynamic), so that it can be decided whether a BFI bit should be set on. Wood describes as a problem that neither the CRC calculation alone nor in connection with a single threshold is sufficient for BFI determination.

However, the same that was stated above with respect to point C for Wigren, also applies to Wood. Wood does not recognize the problem addressed by Applicant's claims, nor does it describe the two successive checks of the present application (checking of channel decoding in step 506, and checking whether speech frame contains decodable speech in steps 508 and 510). Wood mainly deals with dynamic bit correction thresholds that improve the performance of the transfer channel.

Wood, in Col. 6, line 61 through Col. 7, line 15 only, refers to the situation when there are no speech frames transmitted at all. Such a situation arises during discontinuous transmission (DTX), for example, when there is no speech present to be transmitted. This does not correspond with the subject matter claimed by Applicant, where it is "inferred from the value of at least one speech parameter in the channel decoded speech frame whether the speech frame contains speech that is decodable by means of a speech decoder." In Wood, channel decoding and speech decoding are done normally, i.e. if the channel decoding in the channel decoder (reference numeral 202) is successful, it is considered that the speech frames contain decodable speech that may be decoded by the speech decoder (reference numeral 207). Speech frame substitution block (reference numeral 205) takes care of situations when a frame is lost.

Thus, in Wood the speech frame is considered always to be decodable by a speech decoder, if the channel decoding indicates that the frame is acceptable. Thus, Wood does not disclose or suggest each feature of Applicant's invention.

As claimed by Applicant, "decodable by means of a speech decoder" means that if the speech frame is not decodable by means of the speech decoder, even if it has been received error free according to the channel decoding, then it may not originate from a speech encoder (some errors that the channel coding cannot correct remain in the speech frame, for example). In Wigren, if voice activity is not detected, it refers to a situation where presence of speech in the received signal is not detected, but the signal is still decodable by means of the speech decoder as the origin of the signal is the speech encoder. In Wood, when a bad frame is detected, it refers to a situation where

corrupted speech is received from a channel decoder, i.e. this is not a problematic situation, as the bad frame indication already shows that the speech is not decodable by means of the speech decoder.

Thus, claims 1, 12, 23 and 24 are not disclosed or suggested by Wigren in view of Wood.

Claims 2-11 and 13-22 should be allowable at least by reason of their respective dependencies.

4. Claims 2-5 and 13-16 are not unpatentable over Wigren in view of Wood and further in view of Dunlop et al. under 35 U.S.C. §103(a).

These claims should be allowable at least by reason of their respective dependencies.

5. Claims 11 and 22 are not unpatentable over Wigren in view of Wood and further in view of Lagerqvist. Claims 11 and 22 should be allowable at least by reason of their dependencies.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

The Commissioner is hereby authorized to charge for any fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,

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